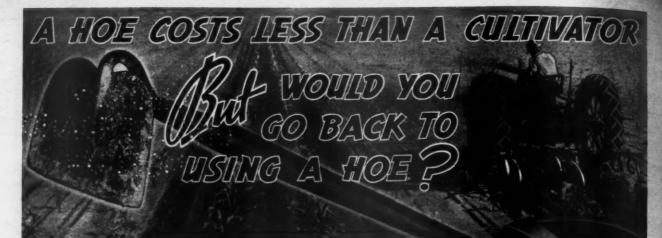
HAIL NUMBER

SPECIAL ARTICLES . . Pages 7 and 9 MAY - - 1938



Firestone Ground Grip Tires On Your Tractor and Farm Implements Save 25% In Time and Up to 333% In Fuel

BACK in the old days, farmers used hoes to cultivate their corn. Then along came the cultivator. It sold at a higher price than a hoe, but it saved so much time and work and money that farmers soon discovered it was better to pay more and make farming easier and more profitable.

Until a few years ago, farm tractors were equipped with steel-lugged wheels. Then Firestone pioneered and marketed the first traction tire for farm tractors. A set of Firestone Ground Grip Tires costs more than steel-lugged wheels, but they save 25% in time and up to 331/3% in fuel costs and they enable you to do more work in a day with greater ease and more profit.

The modern farmer no longer considers it an expense to equip his tractor and wheeled farm implements with Firestone Ground Grip Tires. Today, such a move is regarded as a shrewd investment. That is why you find Firestone Ground Grip Tires on the tractors and implements of successful farmers everywhere.

Why be modern in your choice of implements and old-fashioned in your choice of wheel equipment? Invest in a set of Firestone Ground Grip Tires! With these greatest of all traction tires you can cut your farming costs, spend more time enjoying life and take much of the hard work out of farming. See your nearby Firestone tire dealer, implement dealer or auto supply and service store today and learn how little it costs to put your farm on rubber.

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THE VOICE OF FIRESTONE

Interviews with the Champion Farmers of America, featuring Everett Mitchell. Twice and the Firestone Symphony Orchestra, under the weekly during the noon hour. Consult your local paper for the station, day, and time of broadcast.

restone GROUND GRIP TIRES

Mail

destroys thousands of acres of FRUIT CROPS every year, causing great financial loss to growers.



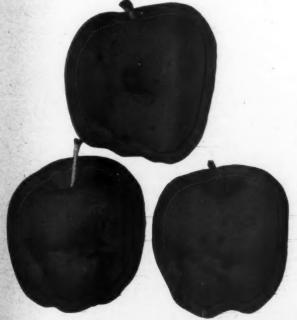
DON'T RUN THE RISK OF LOSING YOUR CROP

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WAY, 1939

AMERICAN FRUIT GROWER

"I'M MAKING AN ON-THE-JOB TEST TODAY

-- but its going to be mine tomorrow!"



This farmer doesn't own this truck. He's making a Ford "onthe-job" test. He agreed with his Ford dealer that buying a truck on proof is better than buying a truck on claims or promises. So his Ford dealer has told him to use the Ford V-8 Truck on his own job, with his own loads.

You can make this same test without cost or obligation. We'd like to have you try a 1938 Ford V-8 Truck on your job. It's a great experience in how to do more work, and do it faster, at lower cost.

In addition to the new standards of economy and ruggedness, the 1938 Ford V-8 units are better looking, more comfortable. Cabs are roomier. Steering is easier. Brakes are improved. It is easier than ever to find exactly the right unit for your job. Ford Trucks are now available on four wheelbases-including new 122-inch wheelbase One-Tonner. See your Ford dealer on your next trip to town, and arrange for an "on-the-job" test.

FORD V.8 TRUCKS

Nationwide News

To care for the storage needs of their grapefruit crop, members of the Arizona Citrus Growers Association have constructed a 200-car storage at Phoenix. The two-story building is of reinforced concrete construction and completely equipped with temperature and humidity control machinery.

Originally introduced nationally by the Washington State Apple Advertising Commission, apple bread has been rapidly gaining in popularity since being pushed by apple advertising groups from coast to coast. Bread dough is made in the usual manner with one pint of strained apple sauce added to each quart of milk.

Early May will see the finals of the annual field judging contest sponsored by the West Tennessee Strawberry Festival. Growers enter their fields in this contest; county winners are selected, and the finals determine the best field in the section. Past contests have resulted in better cultural operations being followed by growers.

Meetings of the Michigan Blue berry Association, recently held at South Haven, featured discussions on the use of Cellophane labels and standardized crates by members. Goal of this organization is the production of large blueberries that will command top prices.

Movies have taken their-place as an important method for fruit extension education. Pennsylvania extension workers have recently been using motion pictures of cherry and peach culture at fruit meetings throughout the State.

Small-fruit production is gaining in popularity in Montgomery County, Alabama. The Youngberry has been planted more frequently than other brambles. Included in the plantings are strawberries, grapes, figs, and scuppernongs. Contributing factors to this increase in plantings are retail roadside selling and food preservation advances.

Dr. O. Wesley Davidson of the New Jersey Experiment Station points out that, "It has been shown that the use of excessive amounts of potash fertilizer on soils low in calcium may be conducive to calcium deficiency and poor growth of the trees. On the other hand, large amounts of lime on soils low in potash will result in potash deficiency, so there is a need for balanced feeding of fruit trees."

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VATIONAL FRUIT MAGAZINI

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AMERICAN FRUIT GROWER

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At the request of readers in every part of the country the editorial pages of the JUNE issue

American Fruit Grower

will be given over entirely to

THE
ANNUAL DIRECTORY
and
BUYER'S GUIDE

Esthunter

E. G. K. MEISTER, Publisher



Ernest Cobb (in white) supervises the spraying in his orchard. The truck is a 11/2-ton International Model DS-30. The tank holds 800 gallons.

Powering the Sprayer . . . Another Job for an INTERNATIONAL

When it comes to powering sprayers, a tractor is a more familiar sight in the orchard and grove than a motor truck. However, Ernest Cobb of Largo, Fla., is a grower who finds his International Truck handy to use for this important operation.

Powering the sprayer is just *one* of the many jobs owners find for their International Trucks to do around the place. But whatever the work, whether it's hauling a load of fruit to the terminal or bringing back a dozen sacks of fertilizer from town, you can count on Internationals for economy and performance.

Investigate the complete line of Internationals, from the Half-Ton unit up to the Heavy-Duty models. All are all-truck . . . the kind of trucks that make both



International Pick-Up Trucks are available in three sizes. This is the ¾ to 1-ton Model D-15.

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INTERNATIONAL TRUCKS

PAGE 6

AMERICAN FRUIT GROWER

MAY, 188

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"Suc seem ment puffe a mo to st stone the strong panie usua the s

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FOLLOWED BY A CHECK FOR \$7,631.00-REAL LIFE STORIES OF INSURANCE AGAINST THE ELEMENTS ...

Specimens of apples that undoubtedly would have brought top prices if heil had not left its damaging imprint.

By JONAS HOWARD

T WAS six o'clock on the evening of June 28, 1937. There to the north of us raged a thunderstorm that apparently had passed us by. Our trees and fruit had been spared a terrible ordeal, and we breathed a sigh of relief," relates R. M. Clark, whose 85 acres of orchard, ranging

from four to 34 years of age, are located in Polk

"But our relief was shortthree miles wide to the southeast, taking in our orchards.

"Our place was a sorry sight. Paint and roofing on the buildings were severely damaged. Seventy-one per cent of our apple crop was cut from the trees, and about 84 per cent of the fruit remaining on the limbs was injured. Grapes and plums were wiped out. The trees lost much of their foliage.

Fortunately, the bark, while marked on the exposed side by the hailstones, was not shredded, so the trees healed up nicely during the remainder of

ments and the destruction to trees and fruit sometimes wrought by them. In the following paragraphs he tells how hail insurance provided him with an income in 1937 when over 95 per cent of his fruit crops were destroyed.

"We had an \$8,000 hail insurance policy. About two weeks following the storm an adjustor from the insurance company

(Turn to page 26)

lived," continues Mr. Clark.
"Suddenly there seemed to be an enlargement of that storm which puffed at us from the northwest, a most unusual direction for a storm to strike in our section. Soon hailstones covered the ground, some of the stones as large as hickory nuts. Strong winds and heavy rain accompanied the hail, and instead of the usual three or four minutes of hail, the storm lasted for 20 long minutes!
"We learned later," Mr. Clark

states, "that the hail struck three or

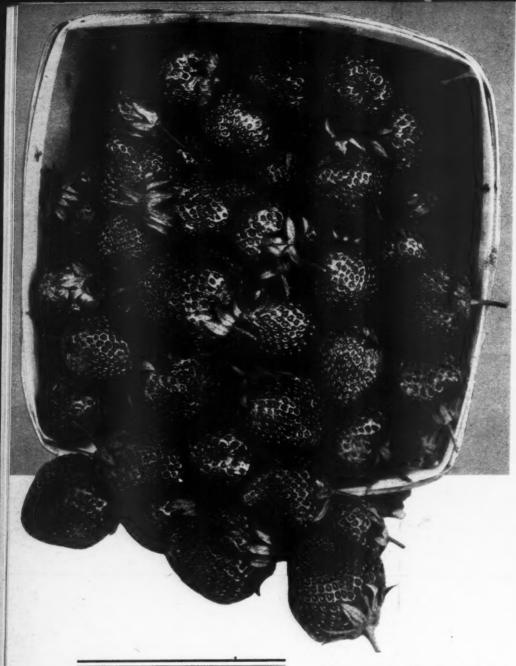
four miles to the northwest of us and

cut a path eight or nine miles long by

any

Mr. Clark has given a picture of the utter desolation that faced him in 1937—damaged buildings, injured trees, and almost a total loss of fruit. Luckily he had considered the ele-





BERRIES .

Blakemore strawberries just after harvest. In the accompanying article Tennessee grower Shatz describes the methods used for planting and profitable production of this variety.

BLAKEMORE TRIAL

Working on the theory that strawberries can be produced better and more profitably in plantings of from 10 to 30 acres than in patches of from one-half acre to two acres in size, Dave M. Shatz of Obion County, Tennessee, set out 24 acres of Blakemores in the spring of 1933.

At this year's Tennessee State Horticultural Society meeting, Shatz told of his experiences with the planting, "You will recall that the spring of 1933 was wet and late, so the setting was not completed until the third week in April. This experience impressed upon me the advisability of fall preparation of land which is to be set to berries the following spring.

"Rows were spaced four feet from center to center and plants set according to the season, varying from 30 inches to 18 inches. Cultivation was practiced during the growing season until late September. By that time, I had increased the height of rows from four inches to 12 inches and the width from not more than 10 inches to 20 inches. Straw at the rate of about two tons to the acre was spread over the entire field in the latter part of December, to serve as a mulch.

"At the close of the 1934 picking season I immediately began cultivation of this field and found it necessary to remove the straw mulch. One-horse turning plows were then used to bar off the plant bed from 10 to 12 inches and hoes were used to remove all of the surplus plants.

"The same procedure was followed in 1935 and the first part of 1936. During the latter part of June and the first part of July, in 1936, approximately 250 pounds of bone meal per

AMERICAN FRUIT GROWER

acre and the same amount of cotton seed meal were drilled into the beds. In the fall of 1936 an additional 250 pounds of a 4-8-8 commercial fertilizer were applied. In the early part of September, 1937, another application of 450 pounds of the 4-8-8 fertilizer was made."

With this summary of his cultural methods, Mr. Shatz continued to tell of how each year since 1934 his berries have been of such quality as to command prices of from 25 cents to \$1 per crate over those received for berries picked the same day by other growers in his locality. His highest yield came in 1935 when, although the season was wet and many berries were damaged in the field, production reached 7,142 crates.

Concluding his talk, this Tennesse grower declared: "The remuneration from this field has been so gratifying that I was prompted to set an adjoining field of 30 acres. I fully expect this new field to produce equally as well if not better, and to have fruit of a quality comparable if not superior to the field which I set in 1933."

PEARS .

SPIDER MITE

Although barely visible to the naked eye, the spider mite is capable of causing heavy losses to pear growers, particularly in the Northwest. These tiny insects, less than one-fiftieth of an inch in length, feed on the undersides of the pear leaves causing them to became blotched with brown and blackened areas, and to drop.

While talking before the Oregon State Horticultural Society, L. G. Gentner of the Southern Oregon Experiment Station, reported, "In severe cases trees may become almost completely defoliated, resulting in small fruit and poor vigor of the fruit buds which are to produce next year's crop. Repetition of the defoliation will soon devitalize the trees.

"Spider mites vary considerably in color. During the summer they are usually yellowish to greenish in color, but in the fall they might be bright lemon-yellow or reddish - o range. There may or may not be two blackish spots of variable size showing through the skin on the back of the mite, one on each side."

That there is a marked difference in the susceptibility of varieties to injury by spider mites was pointed out by Gentner. Anjou and Bosc varieties are most readily attacked while Comice is usually less seriously affected. Injury is seldom found on Bartlett and Winter Nelis trees.

The mites overwinter as adults and nymphs in trash and under bark-flakes on trees. In the spring and early

(Continued on page 10)

MAY, 198

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Scarred and battered fruit, torn foliage, injured bark—the result of the furious, swift descent of hail is shown in the above illustration.

"We were working in the orchard not more than 500 yards from our buildings, when the storm came up. We sped to the barn to get our horses and ourselves under cover and scarcely were we in the barn when the worst part of the storm hit. It was about 10 o'clock in the morning and the sky grew as dark as night. After the worst of the storm was over, you could gather hailstones as large as shelled walnuts.

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"As soon as possible we made a survey of the orchard and found many of our largest and best trees split down, some of them with only one-third of the main trunk still

standing and some more than half broken down. Many trees were even uprooted. Our entire crop was unsalable and we never realized a dollar from any variety."

The second grower, Ernest Wilder, who is a neighbor of Watson, gives a word picture of his encounter with hail: "Some of our fruit was completely cut from stems

and what was left was badly marked up. Many leaves were lost and limbs were cut and bruised severely."

The Wilder orchard is made up of Bartlett pears and apples including such varieties as Northern Spy, McIntosh, Chenango, Greening, Baldwin, Opalescent, Wolf River, Stark Delicious, Twenty Ounce, and Cortland. The 54-acre orchard is owned by Mrs. Amy A. Wilder, whose husband and Mr. Wilder's grandfather, Charles Wilder, started the orchard 54 years ago. A unique

(Continued on page 23)

PAGE

summer they feed on cultivated and wild plants, such as clover, vetch, beans, wild morning glory, wild mallow, and wild cucumber. Migration from these host plants to fruit trees is usually around the middle of June, but may vary from season to season. It is therefore necessary that individual orchards be watched for appearance of the mites.

Gentner and his associates found that the most satisfactory time to apply sprays for control of this pest is when blackened areas begin to show up quite generally on the leaves. If mites continue to migrate to trees after the first spray, it may be necessary to make another application later. Of materials tested at the Oregon station, summer oil emulsions were best. On the control of this pest Gentner stated:

"Commercial emulsions, containing medium or light medium oils, should be used at the rate of one and one-fourth gallons in 100 gallons of water, while those containing light oils must be used at a strength of one and one-half gallons to give effective kill. A practice which some growers claim has given some measure of success as a preventive is the use of three-fourths of a gallon of summer oil emulsion with lead arsenate in the second and third codling moth cover sprays.

sprays.

"The chief value of natural enemies of the mites, such as the small black ladybird beetle and predacious thrips, lies in their destroying mites missed by sprays or that have migrated to trees after application of the spray.

"Since mites feed on undersides of leaves, somewhat protected by webs which they spin, it is important that sprays be applied with sufficient pressure to thoroughly wet the lower leaf surfaces. Oil sprays should be applied not later than one month before picking time to avoid complications in residue removal."

PEACHES

ORIENTAL MOTH

As so often happens with orchard insects, a certain pest may be present for a number of years without causing a great amount of trouble. Then, in one season, its activity may promote it to a place of importance among the outstanding fruit pests of a certain section. That is what happened in Michigan during the past season with the oriental fruit moth. Ray Hutson, entomologist at the Michigan Experiment Station, says about this insect:

"At the time of its introduction the oriental fruit moth caused consider-



Heavily laden Bartlett pear tree in an Oregon orchard. This pear variety is seldom attacked by the spider mite.

able damage in a few orchards, but during the past several years has occupied a minor place. During this time a great deal of study has been put in upon it and Federal as well as state experiment stations have expended a great deal of money and time in studying methods of control.

"Generally speaking, we have not been able to devise a method of spraying for the control of oriental fruit moth which is as effective as that for codling moth control. Some materials seem to be fairly successful but when applied on a large scale, the results have not been all that could be desired.

'The best treatment that we have discovered to date is the use of an oil dust containing about five per cent oil and made up of lime and sulphur as well. The proportions used are 60 pounds sulphur, 30 pounds lime or talc, and five pounds oil. Ordinary summer oil emulsions are used for this purpose. Dust is applied at the rate of about one-half pound per sixyear-old tree at weekly intervals for one month before the peaches ripen. Control resulting from use of this system has been such as to indicate that it would pay to apply the dust, but it has not been anywhere near 100 per cent effective."

Aside from parasites, one of the most efficient methods of control of this pest is cultivation of the peach orchard as soon as the land can be worked. Since about 90 to 95 per cent of all oriental fruit moth larvae winter on the ground beneath the trees, according to Hutson, very few of them will survive if cultivation is carried on at this time of year.

From the U.S.D.A. laboratory at Moorestown, N.J., parasites are disseminated to all peach growing sec-

years Hutson and his associates have made an effort to distribute the parasites in Michigan peach sections where the greatest difficulties were being experienced. This work will undoubtedly receive continued attention, since observers have found that in most cases where liberated, the parasites had established themselves and were feeding upon the oriental peach moth.

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Some of Hutson's replies to perinent questions on the oriental fruit moth were:

"If you have apples and peacher planted together and it happens that the apples are aromatic, that is, if they have a distinctive odor such as that of Delicious and Starking, you will find that a percentage of those apples may become infested with oriental fruit moth. I have seen under such conditions as much as 15 per cent of the apples infested with fruit moth. I have never seen the fruit moth in any number in an apple orchard which was not interplanted with peaches.

"If there were as many quince trees as there are peach trees, this inset would never have gained the name of 'peach moth' for the oriental fruit moth works industriously on quinces and will forsake peaches for quinces almost any day of the week.

"You cannot tell the difference between an oriental fruit moth larva and a codling moth larva unless you have a lens. If you have a magnifying glass, you can distinguish an oriental fruit moth larva from a codling moth larva by looking at the back segments of the larva where you will see what we call a comblike structure. The codling moth larva does not have such a comb."

MAY, 1898

Today the headquarters of a modern fruit grower, this 125-yearold manor house at Seven Oaks formerly housed generations of cotton planters.

AN ADVENTURE WITH

NORTHERN APPLES IN THE DEEP SOUTH

By DEAN HALLIDAY

AWAY down south in the land of cotton, "Mort" Ames of Selma, Ala., is figuratively upsetting the apple cart. He is doing it by what to him is the comparatively simple procedure of undertaking to grow northern varieties of apples on plantation land which for generations has been the domain

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of King Cotton.

"Mort" Ames, it should be explained, is really two persons. On the one hand he is M. P. Ames, general manager of the Selma Manufacturing Company, makers of cotton sacks. On the other, he is "Mort" Ames, planter in the modern manner. As manager of one of the largest bag mills in the deep South, Ames is vitally concerned with cotton. As a planter, he won't give it even a corner of his 2,400 acres. So far as he is concerned, "the King is dead, long live the King," and by that he means King Apple instead of King Cotton.

Ames, the bag manufacturer, lives in the languidly beautiful city of Selma. In the early days it was the capital city of the State, and it is steeped in historic traditions. Ames, the planter, is overlord of the Seven Oaks Plantation, whose several thousand acres sprawl over the hill country some 15 miles from Selma

try some 15 miles from Selma.

The South is "Mort" Ames' land only by adoption. He was born in California and educated in the East. He spent his earlier business years in Ohio, where he acquired the now ingrained habit of being a "go-getter." After some half dozen years spent in the South he is still a "go-getter."

All told, Ames and his father, who

All told, Ames and his father, who is president of the bag company, have had business interests in the South for more than 25 years. It was shortly after "Mort" Ames took over the management of the bag manufacturing business in Selma that he set about

(Continued on page 20)

King Apple now reigns in fields which once were the domain of King Cotton. Lespedeze as a cover cop on land in which northern apple trees have been set out.

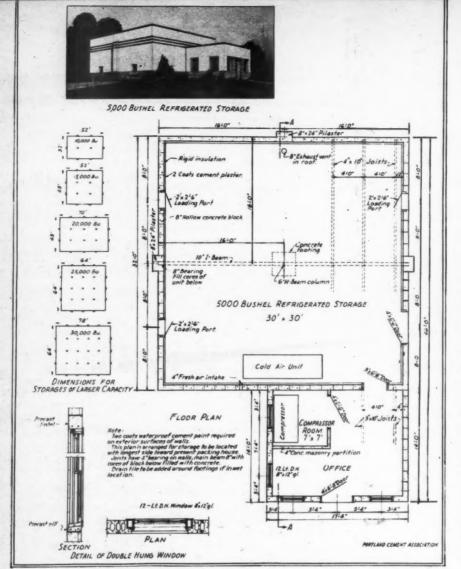
Rolling land calls for contour planting of the thousands of peach trees which are being set out annually. In the background can be seen the general store and new cannery.

Another section of peach orchard at Seven Oaks, and in the background the water tower and storage tank which provides a pressure system for the various plantation operations.









TEMPERATURES MADE-TO-ORDER BY THESE MECHANICAL AIDS

REFRIGERATING units for every size of fruit farm storage installation, whether it be a small one or a large one, are available to the grower. These units perform efficiently and economically and make it possible for the grower to maintain the desired temperature in his storage. Below to the left is shown a General Electric condensing unit which can be had in sizes ranging from one-fourth horsepower to 50 horsepower. The ceiling type Frigidaire blower shown in the lower right illustration is doing a good job of maintaining proper temperatures in the 8000-bushel storage of the Laurelville Fruit Company in Hocking County, Ohio. The Hillcrest Orchard in Hancock County,

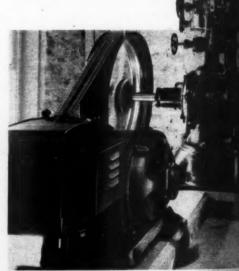
West Virginia, is using in their fruit farm cold storage the Frick compressor shown in the photograph to the right. The temperature usually maintained in fruit farm cold storages is 32 degrees, although some growers keep their storages at a slightly higher or slightly lower temperature. Equipment that will cool the apples to 45 degrees during loading will normally reduce the temperature to 32 degrees in a week after the loading has been completed. Before making final decision in the matter of refrigerating units, fruit growers should, of course, consult engineering specialists of the refrigerator equipment companies and, if possible, visit farm storages in their own locality.

MODERN DESIGN

5000 BUSHEL FRUIT STORAGE

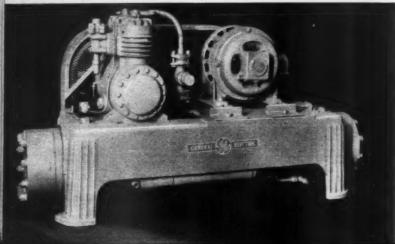
THE exterior view of the refrigerated fruit farm storage shown on the left is an excellent example of a type of construction that is attractive and modern in appearance and at the same time practical. A storage of this kind in view from the highway, with suitable landscaping and adequate parking space, has the effect of stimulating sales of fruit direct to consumers. The floor plan for this concrete storage designed by the Portland Cement Association, gives detailed dimensions for a 5000-bushel storage. Dimensions are also included for storages of larger calso included for storages of larger capacity. In determining the size of refrigerated storage to be constructed, individent

also included for storages of larger capacity. In determining the size of refrigerated storage to be constructed, individual needs as influenced by size of orchard, time and method of marketing, and other factors must be taken into consideration. Many growers find that a storage which will hold about two-thirds of a maximum crop is a satisfactory unit. It is customary to plan two and one-half cubic feet of space per bushel of stored fruit in crates. This allows for lost space and air circulation over and through the stored fruit.



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stap







POISON IVY AND POISON OAK

CONTROL

BY MEANS OF CHEMICAL WARFARE

Patch of poison ivy under apple tree, above. Dense growth indicates possible difficulty in eradicating this pest.

By W. H. ZIPF

OISON IVY and poison oak—weed pests that may cause extreme discomfort if orchard workers are susceptible to the rash-producing vapors given off by the leaves—unfortunately are often found growing abundantly under fruit trees.

For a number of years, California workers have been using carbon bisulphide in an attempt to eradicate poison oak. In their experiences a single application of carbon bisulphide was made on numerous clumps of new and old plants, using two ounces as a dose, with the applications spaced 18 inches apart in holes 12 inches deep.

The number of applications varies according to the size of the clump treated. When the applications are spaced 18 inches apart, they should be alternated in adjoining rows, or staggered. Holes are made with any solid wooden or steel pole. The bisulphide is measured and poured in through a pipe reaching to the bottom of the hole. After the liquid has scaked into the ground, the hole is closed with dirt and tamped tight.

Carbon bisulphide is a heavy oily-like liquid which evaporates readily and forms a heavy poisonous gas, and is used more generally for killing ground squirrels and insects. This gas, being heavier than air, penetrates into the soil in every direction except where soils are extremely MAY. 1998

heavy or soaked with water. The best time of application is in the summer after the subsoil is drying out, provided the soil is not badly cracked.

While the use of carbon bisulphide is a comparatively expensive treatment, one application is usually sufficient. Should weak sprouts appear the second year after the control measures were applied, these can be readily killed with smaller dosages of the liquid. Hand grubbing is probably the least expensive method of control, but with this method patches of poison ivy or poison oak are likely to appear year after year. Hand grubbing, too, must be done only by persons immune to the harmful effects of the plants.

In Gallia County, Ohio, tests were made in the summer of 1937 with heavy, long-established patches of poison ivy beneath Ben Davis trees. The trees were about 50 years old and in weakened condition due to age, drought, and winter injury. Under the direction of C. J. Willard and Frank H. Beach of Ohio State University, a dry mixture of sodium

chlorate was applied on May 30 and a solution of the same chemical on July 15

Application of the dry mixture was made uniformly by hand under a still air condition. The solution was made up of one-half to one pound to the gallon and applied with a power sprayer, using a disk of 4/64-inch diameter in a spray gun which delivered one gallon per minute. Control of drift was easier with the solution but it was observed that severe injury occurred wherever the material came in contact with twigs, leaves, or fruit. This emphasizes the importance of spraying the ivy only.

A single application of three pounds of sodium chlorate per square rod on July 15 in this test gave excellent kill of ivy, and there was no visible injury to trees on October 16. But definite injury occurred to the trees following application of six pounds or more of sodium chlorate per square rod. It would therefore seem that the application need not be stronger than three pounds per square rod and might safely be less.

Also observed was the fact that a better kill was secured where the ivy (Continued on page 18)

PAGE 13

A PAGE CONDUCTED IN THE INTERESTS OF THE AMERICAN POMOLOGICAL SOCIETY

POMOLOGY RESEARCH IN REGIONAL LABORATORIES

T will be good news to the fruit growers of the United States that the Federal government is providing a million dollars a year for each of four regional labora-tories in which research will be conducted on the industrial utilization of those farm crops which frequently produce surpluses. The administration of these laboratories is placed in the hands of the Secretary of Agriculture. The chief of the Office of Experiment Stations and the head of the Bureau of Chemistry and Soils will be the officers immediately in charge. It is expected that the location of the labora-tories and the character of the work which will be carried on in each of them will be determined by consultation with the directors of the State experiment stations and will be based on a careful survey of the agricultural needs in the different sections of the country, with emphasis being placed where the greatest needs

Considerable sections of the fruit in-dustry have been in serious trouble for several years because of their inability to dispose of burdensome surpluses. In the hardy fruits territory the apple crop

has been particularly affected, partly as a result of losing the export markets and partly from alternating years of light and heavy crops. Because orcharding is a business involving long-time investments, and the cropping plan cannot be altered from year to year to meet changing con-ditions, it is imperative that new outlets be found for by-products and that addi-tional stimuli be given to the consumption of the normal production. The industry looks forward with confidence to the discovery in the new research laboratories of good ways to utilize the surplus apple crop, and of new and useful evidence of the health and food values of that commodity.

The American Pomological Society, working through the National Apple In-stitute, is glad to announce that a committee is gathering data and presenting its case for help to the authorities who are charged with administering the laboratories. The suggestions and opinions of the fruit growers are invited by the secretary of the institute, Dr. H. E. Barnard, 225 Wimmer Building, Indianapolis,

LOW GRADE APPLES

PROSPECTS are for a deciduous fruit crop that will be light as compared with crop that will be light as compared with that of last year. Apple trees which bore heavy crops in 1937 are reported to have set a light crop of fruit buds and it ap-pears certain that an unusually light crop is in store for fruit growers. This should mean real money for those regions and orchardists who are fortunate enough to have a good crop.

The apple industry as a whole emerged from last year's big crop with a "head-ache." A big crop like that of last year revived with great emphasis the perennial discussion of "what ought to be done with the low-grade apples." The question was discussed all over the country and many

proposals were put forth.

There is not the slightest doubt but that cull and other low-grade apples de-press the market for all grades, and that prices of properly graded fruit would be higher if growers would refuse to market any but the good grades. But what grower is going to stop selling the cull pile, so long as neighboring orchards and orchard grade fruits on the market before they spoil? The cull nile which sections make a practice of dumping lowspoil? The cull pile which can be sold for \$100 or \$500 looks like so much velvet to growers who need the money.

Many thoughtful growers and official horticulturists for a long time have raised

their voices against the practice of selling low-grade apples. That the apple is the most popular of all fruits is pretty generally conceded; yet there is no denying that it has lost prestige, and that this loss is due in great part to the fact that too many low-grade apples find their way to market.

There has been enough talk among growers and dealers to demonstrate that "preachments" of this kind have accomplished little. In other words, voluntary action on the part of growers and dealers will never accomplish the desired result. It is felt in many quarters that a strong governmental policy is needed to do for the industry what growers cannot do for themselves.

During the past few months the Virginia State Horticultural Society has proposed a course of action and it is here presented for your consideration study. The quotations are from the last two numbers of "Virginia Fruit." The Virginia folks propose to submit to the Federal Food and Drug Administration for approval the following: "Any lot of apples shall be deemed to be adulterated within the meaning of sub-section sixth of Section 1181 of the Code of Virginia if 10 per cent or more of said apples are contaminated by being dirty, decayed, over-ripe, wormy, or showing scab abrasions, internal breakdown or injury from

"The proposal set forth in the February issue of Virginia Fruit for the regulation of cull apples by law has met with quite favorable response throughout the State although there is some variation in the extent of the regulations desired. Many growers are strongly urging more stringthe regulations, others seem to feel that the regulation proposed is sufficient for the present, while there are others who oppose the suggested regulations and some seem to oppose any regulation of cull apples to be shipped to fresh fruit markets. In some instances it was very evident that they did not understand the proposed regulation.

"To clear away any misunderstanding of what the proposed regulations might mean, let it be thoroughly understood that if the food regulatory offices are to be called upon to promulgate these regulations, those offices cannot regulate grades or specify what grades may or may not be sold. Under the pure food laws, whether state or national, the sale of apples cannot be regulated unless they are unsanitary, adulterated, or otherwise unfit for human food. On that basis and on that basis alone can the proposed reg-ulation be promulgated, and it must be sufficiently conservative and warranted to stand up in court.

"There would be under the proposal no interference with the sale of sound apples that are clean and otherwise fit for human food, and growers would not be required to grade their apples except to eliminate the filthy culls. The present unclassified could be sold under the proposed regulation provided they were clean and did not contain more than 10 per cent of dirty,

filthy, rotten, or wormy apples."

The Virginia approach to a possible solution of the low-grade-apple problem is being considered by grower groups in many states throughout the eastern half of the United States. This discussion may seem to be untimely in view of the may seem to be untimely in view of the fact that a small crop of apples is in sight for 1938. But now is the time to get the machinery set up which will take care of the cull apple situation. If this portion of large crops can be kept off the market, it is felt that all parties from grower to consumer will be greatly bene-

Proceedings of the Missouri conven-tion will soon be in the hands of the printers. You will want this fine report to add to your library, but don't forget to send in your dues for 1938 at once. Many have already paid up. For your membership dues you get the report and a year's subscription to AMERICAN FRUIT GROWER. Send dues to H. L. Lantz, secretary, Ames, Iowa.

SECRETARY

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J. H grower J. H D. P. Dell, Springfield,

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LIGHTS! CAMERA! ACTION! AT RECENT FRUIT MEETINGS

Below Dr. W. F. Pickett, Kansas State College, holding a championship plate of Starking apples, grown by George Shurk of Fort Madison, Iowa, exhibited dring the APS convention in Springfield, Mo.

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Circle—V. R. Gardner, director, Michigan Experiment Station, snapped during the Michigan meeting. Below—Left to right, L. J. Wick, Otto Roesler and brother Ernest, examine a spray broom in New York meeting exhibition hall.





Above, top—New York growers, Ray Tower, left, and Joseph Kujawa, right, at their Rochester meeting talking with John Lyman, Middlefield, Conn. Above—Albert E. Day, left, and Paul Young, out walking between Ohio meeting sessions.

Below—Harry Anderson, left, and J. E. Linde check over program of the Pennsylvania meeting at Harrisburg.













STRIE ILLI

VIRGINIA—To test the relative resistance of various varieties and seedlings to the "red stele" disease, an experimental strawberry plot is being conducted by the Virginia Agricultural Experiment Station in co-operation with the U.S.D.A. Discovered last year in the Delvarva Peninsula by Dr. George M. Darrow and J. B. Demaree, strawberry specialists of the U.S.D.A., this new disease is now appearing in Accomac County strawberry fields.

Plants affected with "red stele" are stunted and die about the time the berries should ripen. If these plants are dug, most of the fine roots will be found missing and sections of the larger roots will have a red core. Soon after fruiting and during the summer the diseased plants die. The disease is caused by a fungus which may be introduced into new land with diseased plants. It is most new land with diseased plants. It is most destructive on low, poorly drained, heavy soil. It is not known how long the disease will live in the soil. Specialists urge that new

It is not known how long the disease will live in the soil. Specialists urge that new plantings be selected from healthy fields and be planted in soil in which the disease has not been known to occur.



FLORIDA—Central Florida's grape industry is assuming an important position in the agricultural development of that section of the State. Over 2,100 acres are now in bearing and additional acreage is coming into production each year. Grapes from this section reach northern markets three to six weeks earlier than any others. Lake County leads in grape production.

A committee to set the size, quality, and grade of fruit packed and to help dispose of the crop for members of the Florida Grape Growers Association has been appointed by E. L. Lord of Orlando, president. Association members were told by Charles Korby of Orlando, agricultural counselor for the Florida Chain Store Association, that the chains would

be glad to advertise and feature grapes.

Annual convention and show of the association will be held at Montverde in July.

WASHINGTON—Coincident with the heavy tree removal campaign that has been under way in Yakima Valley orchards, new plantings have been made by members of the Horticultural Union, reports O. K. Conant, president of the union. Popularity of the Elberta peach for canning purposes is responsible for this variety heading the list of new plantings, according to Conant. Bartlett pear trees have also been planted to some extent but not in the same proportion as peach trees. New apple plantings have been limited to a few of the Winesap and Delicious varieties.

MICHIGAN—By improving their pack over that of other states and identifying it with a stamp which would be recognized by the trade, Leo V. Card, Michigan director of the Bureau of Foods and Standards, believes Michigan growers can strengthen the demand for their apples.

Experiments conducted in a Detroit grocery bear out Card's beliefs. In these experiments high quality Northern Spy apples from PAGE 15 Michigan were packed in apple boxes from another state and offered in this store. Beside the boxed apples stood a bushel basket of the same Spys. Four boxes were sold before the bushel basket of apples was marketed.



GEORGIA—Individually and voluntarily grower-members of the newly-formed Georgia Association of Peach Growers, quartered in Macon, have pledged a minimum of \$25,000 for a test advertising campaign this year in Boston, New York, and Philadelphia. It is hoped through this effort to make consumers peach-eating-minded.

Plans call for shipment of U. S. No. I one and three-quarter inch minimum fruit under a special grade label bearing the title, "Georgia Beautirized Peaches." It is expected participating growers will retain their individual brands, using, in addition, the "Beautirized" label, designating quality.

This association should not be confused

This association should not be confused with the Georgia Peach Growers Exchange, also located in Macon. The two are to function separately and along entirely different lines.

President of the new association is Wilmer M. Dickey, one of the largest growers in the State. According to Dickey, leading grocery chains, semi-chains, and independent merchants in the East already have pledged their co-operation and the co-operation of their staffs in the advertising campaign.

G. E. Snellgrove, a newspaper man of wide experience, is executive secretary of the association and editor of the association's official organ, the "Georgia Peach Grower."

NEW YORK—With the recent completion of a large addition, refrigerated storage facilities on the P. H. DuBois & Sons, Inc., orchards in Ulster County have been increased to 90,000 bushels. Apples from the 300 acres of DuBois orchards as well as from orchards in surrounding territory are stored in the plant. The original storage, built 10 years ago, is equipped with ammonia equipment, while a blower system has been installed in the new addition. Brothers Martin Lee and Louis manage the plant.



TENNESSEE—Roy Ozier of Pinson produces unusually clean fruit with a "scanty" spray schedule. We stumbled onto his secret when we visited his orchard in January and found his men scraping all of the cover from under his mature trees into the middles where it can be plowed or disked under deeply.

be plowed or disked under deeply.

C. C. Cardwell follows an unusual type of orchard sanitation. He turns a drove of 40 to 50-pound porkers into his orchard right after harvest. They dispose of all dropped fruit and root just enough to cover a large part of the scabby leaves that have fallen. He believes that this practice destroys more scab than any spray on the schedule.—A. N. PRATT, Nashville.

AMERICAN FRUIT GROWER

KENTUCKY—Legislation which will appropriate \$10,000 for the purpose of improving Kentucky's fruit industry is being sought by fruit growers, through the efforts of Frank T. Street, Henderson County grower.

The money, to be spent by the sub-stations of Kentucky and the sub-stations.

The money, to be spent by the sub-stations of Kentucky Agricultural Experiment Station, would be used to encourage better methods of producing, packing, and marketing strawberries, apples, peaches, and other fruits, and would provide for a study of diseases and insects affecting fruits.

SOUTH DAKOTA—Replacements of many orchards killed out by the drought of the past few years are being made, since moisture is abundant this spring.

The Haralson apple, which is hardy and an early bearer, is increasing in popularity. Alfred Schamber of Rapid City is planting additional acreage of this variety. He reports the apples sell readily in his section. Although the apple is of medium quality, when allowed to ripen on the tree, it is quite edible.—W. A. SIMMONS, Secy, Sioux Falls.



MINNESOTA—A move toward a unified marketing program for Minnesota berry growers was made when, during a recent horticulture short course at University Farm, a State committee was appointed to study marketing problems.

The committee, proposed by representatives of the principal fruit growers' associations, was given unanimous approval. Each association is represented on the committee by its president and one other member. The group will investigate the practicability of a Statewide marketing organization. Aims of such an organization: Standardization of quality of the berries and better distribution of the crop. After the necessary information has been gathered, the committee will meet to

consider what action should be recommended. W. H. Alderman, chief of the division of horticulture at University Farm, was named committee chairman, and J. D. Winter, member of the horticulture staff, secretary. Other committee members: Fred Blomberg, Deerwod; Oscar W. Nelson, Aitkin; E. M. Connor, Excelsior; Elmer C. Haralson, Excelsior; Hughie Viou, Duluth; D. T. Grussendorf, Duluth; Thomas Pederson, Mildred; Melvin Hallet, Hackensack; Norman Batdorf, Zimmerman; Roy Rhine, Maple Plain; Henry W. Leidel, La Crescent; Fred W. Braden, Wayzata.—J. D. WINTER, Sec'y, Mound.

CALIFORNIA—A survey of loss to agriculture in Los Angeles County immediately after the storms which occurred early in the year disclosed total damage from flood waters amounted to \$303,000, according to H. J. Ryan, agricultural commissioner. "Crop lossesfrom rain and wind added another \$392,000. Injury to citrus orchards by rain and flood waters was small considering the amount of cainfall. Cover crops prevented a great deal of damage from runoff in sloping orchards. In all parts of the county 1,361 citrus trees

(Continued on page 19)



"BLACK LEAF 155"

Checks Worms and Stings

Rapid and effective action of properly timed sprays of "Black Leaf 155" means clean fruit—and no harmful residue—a greater percentage of U. S. No. 1 grade.

"BLACK LEAF 155"

Develops Quality and Finish

The bland ingredients of "Black Leaf 155" permit the development of improved color and finish, resulting in a higher percentage of Fancy grades. "Black Leaf 155" does not require washing of fruit.

"BLACK LEAF 155"

is Built for Service

Designed to produce a dense film for effectiveness; a powdery film that adheres to crawling worms; and contact action for commercial control of leafhoppers.

Write for our circular on "Black Leaf 155."

TOBACCO BY-PRODUCTS & CHEMICAL CORP. INCORPORATED . . . LOUISVILLE, KENTUCKY

"BLACK LEAF 40"

The effective and economical contact spray for aphis and red-bug. "Black Leaf 40" is sold by spray material dealers everywhere.

Look for the Leaf on the Package

Black Black



CONTROLLING POISON IVY

(Continued from page 13)

was growing under the partial shade of mature trees than where the patches occurred in the open, and that some patches of ivy need light follow-up applications to complete the eradication. After heavy poison ivy patches were eradicated beneath their branches, the trees appeared considerably rejuvenated.

Mr. Beach has this to say about poison ivy eradication:

"It would seem that sodium chlorate, properly used, has a helpful place in eradicating poison ivy from apple orchards. In many of the older orchards handled under sod culture, poison ivy has become a serious pernicious weed. Orchardists are well equipped with power sprayers to apply the sodium chlorate solution efficiently."

C. J. Willard of the Department of Agronomy, Ohio State University, gives the following precautions in the use of sodium chlorate:

"Buy sodium chlorate in the manufacturer's original drum and store it in this or some other tight metal container in a detached outbuilding. Take special precautions to see that it is not mixed with sulphur in any form since such a mixture is dangerously explosive. Wear rubber boots when spraying. Chlorate ruins leather, and many a crippling accident has occurred, or a spontaneous fire has resulted, when a chlorate soaked shoe touched a tractor exhaust.

"Make up solutions outdoors. Do not spill the dry salt or the solution on floors, wagon beds, or anything burnable. Use metal containers for chlorate solutions. If wooden tanks or containers must be used, keep them full of clear water for some weeks or months afterwards. Do not smoke or come near any fire while spraying or if wearing clothing worn while spraying. Wash thoroughly or destroy clothing, sacks, or other cloths which have been soaked with the solution. Sprayed areas are a fire hazard until after a heavy rain."

Sodium chlorate precautions as given in this article must also be followed for carbon bisulphide. This liquid is highly inflammable and explosive when mixed with air. For this reason a flame or even a spark from hitting metal on metal or from an electric switch may cause an explosion of the gas. Because of the fire hazards connected with the use of these effective materials, it is recommended that they be handled only out-of-doors and stored in tight metal containers.

STATE NEWS

(Continued from page 16)

were destroyed. Serious loss by erosión or silting occurred to 7,322 acres." Los Angeles County is the leading county in the State in the value of citrus fruit production. There are in this one county nearly 45,000 acres of orange trees, 12,131 acres of lemon trees, and 1,376 acres of grapefruit and lime trees. In 1937 the fruit produced from this acreage was valued at \$28,130,779.

-Growers faced with control of lowgrade apples will be interested in the follow-ing resolution, sponsored and adopted by lowa Fruit Growers Association:

"At a special meeting of commercial apple 'growers called by Robert M. Clark, president of the lowa Fruit Growers' Association at State House, Des Moines, on March 7, 1938, it was recognized that until normal exports of United States apples can be fully restored, domestic apple prices are likely to be disas-trously low in normal to large crop years. We believe that in the interest of the consuming public and the financial welfare of apple growers throughout the United States that in all seasons the marketing of apple culls should be discouraged and in the larger crop years the marketing of even U. S. Utility grade apples should be discouraged.

'For progress in this direction these lowa apple growers in this special meeting passed the following resolution.

"BE IT RESOLVED that lowe apple growers go on record in support of a national move by Federal legislation to keep low grade apples out of inter-state commerce except when definitely consigned to by-products plants. The grades to be eliminated should be determined yearly according to the prospective apple crop.

"BE IT ALSO RESOLVED that copies of this resolution be sent to Secretary of Agriculture Henry Wallace, all members of the lowa delegation in Congress, both Senators and Representatives, to the National Apple Institute, the American Pomological Society, and to all the State Horticultural Societies that we can contact.

"Unanimously adopted. Committee inter-state shipments of low grade apples):
Edwin A. Carter, Glenwood, Chairman; Victor
Felter, Indianola; George Koth, Des Moines."

—R. S. HERRICK, Sec'y, Des Moines.

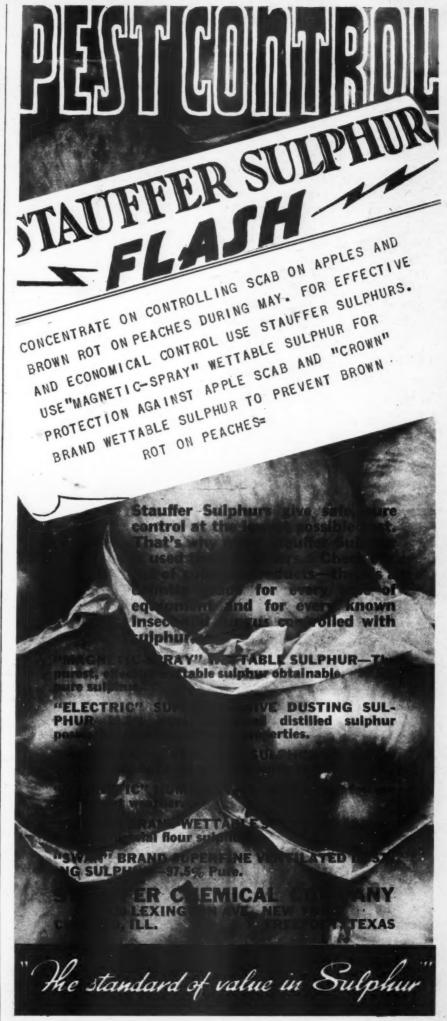
RHODE ISLAND-Officers elected at the recent Rhode Island Fruit Growers Association meeting were: President, Sayles B. Steere, Chepachet: vice-president, William Reid, Wallum Lake; secretary-treasurer, E. P. Christopher, Kingston; executive committee, three years, Edward A. White, Manville.

Forty apple pies, representing as many organizations, were entered in the Apple Pie contest. Winners: Mrs. T. H. Parkinson, Quidnessett Grange, East Greenwich, first prize: Mrs. Fred Patterson, Rumford Grange, Rumford, second prize; Miss Lillian Raymond, Norwood Grange, Warwick Downs, third award.—E. P. CHRISTOPHER, Sec'y, King-

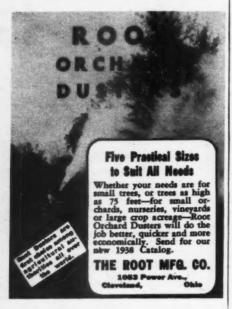
INDIANA—Prospects for increased use of the Hoosier Seal of Quality took another jump with the decision of the Indiana Canners Association to use the seal on some of their canned goods. Indications are that the scope of the seal will extend this year to many Indiana-grown horticultural crops. The seal on a package or container guarantees the commodity to be U. S. No. 1 or better as shown by Federal-State inspection.—R. L. WINKLEPLECK, Sec'y, Lafayette.

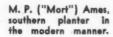
NORTH CAROLINA-Crotalaria is the crop to plant in peach orchards of the Sandhill region, says H. G. Poole of Moore County, considered the largest peach grower in the section. Poole says the Crotalaria provided 54 tons of green material per acre to be turned under last year.

NEW JERSEY-An apple survey covering











NORTHERN APPLES IN THE DEEP SOUTH

(Continued from page 11)

acquiring the land which he now operates as the Seven Oaks Plantation. Since then he has found that to be both a successful bag manufacturer, a business requiring almost constant supervision, and a fruit grower on a big scale, where supervision also is the key to success, entails a daily schedule which gets him up at daybreak and to bed right on the heels of the chickens.

Early this year, as spring came to the South, I drove with Ames over the rolling acres of the Seven Oaks Plantation. The manor house, from which the plantation gets its name, is over 125 years old.

"All this land," Ames explained, "was once cotton land. Year in and year out, for generations, these fields were worked on the single cotton-crop-share-cropper plan. Perhaps you noticed," he said, "in section after section the crumbling remains of old well-heads. Each one marks the site in former days of a cotton-cropper's cabin. In many instances they single-cropped the fields right down to the bare ribs of red sub-soil. Crop after

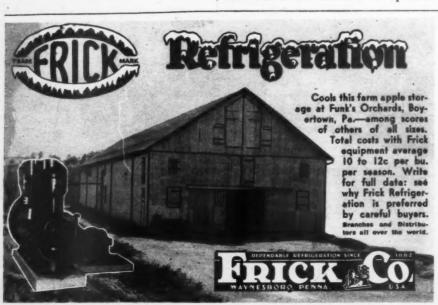
crop of cotton was taken from these lands and nothing was put back. Once upon a time these hills were as fertile as any land in Alabama and now by scientific management, I'm going to see that they become so again."

"The South," Ames continued, "is traditionally an agricultural section. From pioneer days her people have lived in an atmosphere of agriculture. From father to son this agrarian environment has been handed down. But because the soil was so fertile they of the past fell into the easily acquired bad habit of growing one crop-cotton. After securing this land, I reasoned that if the South was going modern industrially, which it is, I would be wise to go modern in my role of planter. That is why I am determined to get away from cotton and corn and have a plantation which consists of fruit trees and the raising of tomatoes, okra, and other produce for canning."

Since the section around Selma is good peach country, Ames has set out several thousand peach trees, mostly Elbertas, and also several hundred pear, plum, and apple trees. His planting schedule calls for putting in 4,000 to 5,000 peach trees each year; but it is his apple planting program that has stirred the natives, both white and black, to open-mouthed amazement. Growing apples on cotton land, and northern varieties to boot! "It's beyond us, suh," they say—and shake their heads.

"But why not?" says Ames. "The soil is a sandy loam, with a clay subbase, which is ideal for fruit. Since the plantation is set in the hills there is good drainage and the climate in this section is very suitable for all types of fruit trees—peach, plum, pear, and apple. True, it's never been attempted down here, but if we go about it in the right way, it can be done."

Ames seeks expert advice as he (Continued on page 27)



STATE NEWS

(Continued from page 19)

(Continued from page 19)
1,428,700 trees out of an estimated total of 1,800,000 in the State was recently completed by the State Department of Agriculture. Heading the list of commercially important varieties, which account for 52.7 per cent of the entire number of apple trees in the State, are Stayman, Rome Beauty, Delicious, Wealthy, and McIntosh.

The list of aged bearing trees includes 134 varieties, among them such old-timers as Salome, Fall Cheese, Turn-in-the-Lane, Jumping John, and Nero.

Salome, Pall Cheese, Turn-in-The-Lane, Jumping John, and Nero.

The following figures indicate, according to
D. T. Pitt, statistician in the Department of
Agriculture, the trend on the part of New
Jersey growers toward the gradual replacement of early and mid-summer varieties with fall and winter types:

fall and winter types:

On the farms surveyed, there are at present 7,154 trees under five years of age out of a total of 215,000 early and mid-summer varieties. Out of 813,500 fall and winter apple trees, there are approximately 61,000 under five years of age.

ARKANSAS—The vicinity of Rogers has been the scene of peach planting activity on the part of new settlers in the section as well as some of the old orchardists. A 20-acre tract of timbered land on a farm recently acquired by W. R. Hudspeth of Chipley, Fla., has been cleared and set to peaches. This at present represents one of the largest blocks of peach trees on one farm in the district.

COLORADO—A new kind of 4-H Club has been formed in the Palisade peach district by Kermit G. Karst, assistant Mesa county agent. Each boy in the club will plant peach trees, care for two of his father's trees, and learn to prune, spray, graft, and irrigate the

TEXAS-Preparations are now being made by Rio Grande Valley Citrus Exchange, Weslaco, for an active expansion campaign during the summer. Organization of new units where none now exists and aiding in securing new members for units now in operation are the duties of H. F. Looney of Los Fresnos, who has been employed as promotion manager.

A sterilizing system which if successful will spell doom for the Morelos fruit fly and be a

been to lower valley citrus growers has been installed by Melch & Company, old established citrus shippers of Mission. Other plants have sterilization rooms under construction. The system is said to have met the approval of quarantine officials.



Everett Mitchell

VOICE OF THE FARM

Everett Mitchell, the man who has a following of millions on the National Farm and Home Hour, will now be brought to the farm audience twice each week on the "Firestone Voice of the Farm" noonday program. This program, sponsored by the Firestone Tire & Rubber Company and Firestone dealers, will feature the farm champions of America in personal interviews with Mitchell. Leaders in every type of crop growing and in all other branches of farm operation, will tell their personal stories in these interviews. MAY. 1938

TRIPLETS IN APPEARANCE BUT

3 grades of performance in the field



YOU can't tell by *looking* at a tractor how it will perform on your farm. You can't tell how many bottoms or implements it will pull, in what gear it will pull them, how quickly it will do your job, or how much fuel it will use.

One way to be sure of top performance and economy is to make sure that the tractor has a high compression engine, designed to get the most power out of regular-grade gasoline. Remember, too, that you can get extra power and economy from your present tractor by changing it to high compression with "altitude" pistons or a

high compression cylinder head.

Send for free 24-page booklet

Write today for FREE illustrated 24page booklet "How To Get More Tractor Power." It tells you: How To ReduceTractorCosts.WhySomeFuels Produce More Power. How High Compression Works. How To Do More Work In The Same Time. Five Ways To Make Your Life Easier. Send a penny postcard now to Dept. TA-6, **Ethyl Gasoline Corporation, Chrysler** Building, New York, N. Y., manufacturers of anti-knock fluids for premium and regular-grade gasolines.

IT PAYS TO BUY GOOD GASOLINE FOR CARS, TRUCKS AND TRACTORS



ORCHARD' BRAND ARSENATE OF LEAD

does a better job for you throughout the growing season . . . by producing a more even, more closely knit coverage on fruit and foliage. The unusual evenness of the spray film is due to the flat, scale-like nature of the tiny lead arsenate particles. This physical improvement, by producing a more thorough coverage, makes the action of the spray material more uniformly effective. Result: Less stung fruit.

ORCHARD BRAND MICRO-SPRAY SULFUR

has been produced to fully satisfy the demand for a wettable sulfur of true microscopic particle size. Micro-Spray contains a properly blended wetting agent that assures rapid dispersion and smooth filming . . . and its high content of microscopically fine, pure elemental sulfur makes it a superior fungicide.

ORCHARD BRAND "34" COPPER SPRAY

presents the maximum fungicidal strength consistent with safety to fruit and foliage. "34" contains nearly three times as much metallic copper as ordinary commercial Bordeaux Mixture. Due to its high concentration and greater toxicity per unit of copper, "34" is used in substantially lower poundage—reduces the amount of bulk in the spray tank, and does not clog the spray nozzles. Containing no free lime, "34" deposits a thin, highly potent film that does not interfere with fruit coloring or leaf activity.

PRODUCTS

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000 acres of grapefruit are in bearing.
California citrus fruits are grown and shipped every month in the year. It is estimated California citrus business furnishes a livelihood for 200,000 persons.



Investments in citrus properties in California total \$637,648,000. Annual sales of citrus fruits from the State often exceed \$100,000,000.

"LIVING GOLD" IN CALI-FORNIA

T IS only 61 years ago that the bright gold fruits from California groves began their journey to the markets of the world, the first carload of oranges having been shipped from Los Angeles to St. Louis in 1877. Now in a single representative year, 100,000 carloads of citrus are shipped by California growers.

California growers.

The first commercial planting of oranges, consisting of two acres, was made in Los Angeles in 1841 by a Kentucky trapper, William Wolfskill. Citrus fruits are now grown in all but 21 of the 58 counties of the State. Los Angeles County, the cradle of the citrus growing industry, continues to top the list as the leading county in the value of citrus fruit production. Quartered in this county is the California Fruit Growers' Exchange, selling the products of over 13,000 producers; also a number of independent shippers of citrus fruits.

Twelve billion tissue wraps valued at \$1,500,000—nearly 3,000,000,000 nails worth \$200,000—180,000,000 board feet of lumber to make 45,000,000 boxes costing \$5,500,000—\$1,000,000 worth of labels, paste, gloves, sacks, and clippers—these are just a few of the expenditures necessary each year to prepare for shipping the oranges,

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lemons, and grapefruit grown in the State.

Long before this fruit is ready to pack, the growers have paid out some \$23,000,000 in wages for tractor work, irrigation, pruning, picking, hauling, and other labor within the groves; another \$5,000,000 for the control of the many insects, pests, and diseases that attack the trees; over \$2,000,000 for fertilizer; and sometimes during an infrequent cold year, \$5,000,000 or \$6,000,000 are spent to prevent frost damage. After the fruit is in the packing house another \$7,000,000 is paid out for the necessary labor to unload, wash, store, grade, pack, and load it into cars for shipment.

another \$7,000,000 is paid out for the necessary labor to unload, wash, store, grade, pack, and load it into cars for shipment.

To this point it has cost the producers of citrus fruits in this one State over \$50,000,000 to grow, pick, pack, and load one year's crop. To ship these fruits out to the distributing centers another \$30,000,000 is necessary for freight and refrigeration, making a total cost to the growers of over \$80,000,000 by the time the fruit is sold to the consumer.

Today there are over 214,000 acres of hearing orange trees in the State and

Today there are over 214,000 acres of bearing orange trees in the State and 23,716 acres of non-bearing age. More than 42,000 acres of lemons are of bearing age and over 18,000 acres of non-bearing age. About three-fourths of the 20,000 acres of grapefruit are in bearing.

PAGE 22

THE TRAGEDY OF HAIL

(Continued from page 9)

feature of the orchard is its refrigerated storage, completed in 1909 and one of the first in the State.

The outlook for the 1938 fruit crop in the Wilder orchard does not seem especially promising. "It now appears," Mr. Wilder states, "that those trees that were severely defoliated during the storm last year will not have any apples this year on the west side of the trees. Other trees that had a heavy crop last year and where the apples dropped after the hailstorm, are coming back with a fair to good showing of fruit."

a fair to good showing of fruit."

Not only did Mr. Wilder suffer actual fruit and tree damage from the hail, but he also found that there was a substantial loss of spray materials and labor. He cautions other growers, "If we have such a storm again, we will try to get the apples off the trees and not put any more money into the damaged crop by spraying it."

Last year both of these Michigan growers were caught short without hail insurance. It was a bitter lesson to them, as is indicated by the following remarks of Mr. Watson when asked if he would carry hail insurance in the future:

"We plan to have hail insurance from now on. If you look to your fruit for profit and want to protect your labor and spraying investment, I would advise every grower to get insurance, after the experience that I went through last year."

I went through last year."
On each orchard block that shows promise of a fruit crop in 1938, Mr. Wilder will carry hail insurance. He doesn't again want to see an entire crop pounded into worthlessness in a few seconds and at the same time face a complete financial loss for the

Having been caught once, these growers are determined not to be caught again. "We're locking the barn, even though the horse has been stolen, for we don't know when the elements will strike again and ruin crops and trees," say these growers.

As a test for its advertising and promotion methods, the Ohio Apple Institute recently selected Findlay as a proving ground for one week. All types of promotional work were on trial during the week in this city and results indicate that concentrated effort will produce increased sales in localities covered by effective apple advertising.

First public recognition of the birthplace of Johnny Appleseed will take place next fall during the New England Apple Festival now being planned by apple leaders in that section. It is expected the festival will become an annual event.

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*In collaboration with Dr. W. B. Tisdale, Plant Pathologist, and Prof. J. R. Watson, Entomologist. AMERICAN FRUIT GROWER



In the growing of pecans, as with other crops, thrifty, vigorous trees make control of insects and diseases much easier.

SPRAYING PECANS IN FLORIDA

By G. H. BLACKMON, Horticulturist*

University of Florida Agricultural Experiment Station

HE pecan industry has grown into one of considerable importance among the horticultural crops of the South. It has been developed from the native seedling stock which grows along the lower Mississippi River basin and the rivers of Texas and northern Mexico. The pecan, being an indigenous species, has been propagated and planted with the original idea that there were no pests to fight. However, as the industry developed and the vast plantings began to come into production, it was soon learned that there were plenty of insects and diseases for the grower to combat if maximum yields were to be obtained.

The situation in Florida is not greatly different from that in the other southeastern states. Both insects and diseases take a heavy annual toll and growers are now thinking more about a suitable spraying program than they have for the past several years. Because of high humidity, however, effective control of the common pecan scab disease has proved too costly with the highly susceptible varieties. Growers are meeting this emergency to a very large degree by top-working those susceptible to scab to prolific types which are at present largely resistant to this disease.

There are other diseases, however, which affect the foliage and cause premature defoliation, thereby greatly reducing the nut yield in the year immediately following. Such diseases as downy spot, brown leaf spot, and leaf blotch are the principal ones concerned in causing this trouble. These are quite easily controlled with two applications of a Bordeaux mixture applied the last of May and again the last of June. While it is generally recommended to apply the two sprays mentioned above, these

foliage diseases have been held in check with one application of Bordeaux during the first half of June.

The insect problem is somewhat more difficult. The nut case-bearer, leaf case-bearer, walnut defoliator, and shuck worm are the most im-



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portant insects that the pecan grower has to fight.

The nut case-bearer cannot be controlled with the ordinary poison sprays because of its feeding habits. The larvae of this insect hibernate in small hiburnacula on the twigs and emerge in the spring and destroy the small nuts in large numbers. Experiments with contact insecticides are being conducted by the Florida Agricultural Experiment Station, in cooperation with the U.S.D.A., and the results obtained thus far are quite encouraging.

The larvae of the leaf case-bearer hibernate in hibernacula similar to those of the nut case-bearer, but when they emerge in the spring they enter the buds and destroy much of the original growth, thus greatly reducing the bloom. Pupation takes place soon after the spring flush of growth, and the moths emerge and lay their eggs along the midrib of the leaflets. Fortunately, the larvae feed sparingly on the leaves during the summer and can be killed at that time with a poison spray. Calcium or lead arsenate added to the Bordeaux, which is applied in June for the foliage diseases, will be effective in combatting this insect.

Orchards that are sprayed several times during the growing season will not be troubled with the walnut defoliator or other leaf-eating insects if calcium or lead arsenate is added to the Bordeaux. Where only one spray application is made, it may be necessary to destroy the defoliators in August and September, either by spot spraying or by hand when they bunch up on the trunks of the trees.

The shuck worm cannot be held in check with a spraying program. It can be controlled only by knocking off the husks and destroying them by burning, burying or plowing under to a depth of at least four inches.

Pecan rosette is a physiological disorder that is generally produced by a zinc deficiency. Growth becomes stunted, by the shortening of the internodes, and leaflets develop a yellow, mottled, chlorotic condition and are quite narrow and crinkled. This disease will yield to both soil and spray applications of zinc sulphate. Zinc sulphate added to the Bordeaux used for the leaf diseases will generally prove sufficient to control rosette if two or three applications are made from May to August. If only one spray application is made for the control of leaf diseases, it will not be possible to rid the trees of rosette effectively except where there is a low percentage of the leaves showing the symptoms.

In a general spray program for the pecan orchard, as has already been indicated, it is not necessary to make separate applications to cope with each of the problems mentioned. A

(Continued on page 28)
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 For a maximum control of codling moth and other chewing insects, NuREXFORM is a plus value in crop protection. Formerly sold at a premium, it is now available at the price of other leads.

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Hail, which is composed of successive layers of clear ice and snow ice, causes millions of dollars of damage yearly to the nation's fruit crops. Damaged pears shown above.

GUARDING AGAINST HAIL DAMAGE

(Continued from page 7)

came to settle the loss. If adjustment is made before a reasonable length of time has elapsed, all the actual hail marks on the fruit will not show up.

"The procedure followed in arriving at the amount of damaged fruit is as follows: The percentage of knocked-off fruit, where heavy as in our case, is estimated and 100 per cent damage is allowed on this type of loss. Then 100 apples are picked from representative apple trees, 25 from each of four sides to get all exposures and taking a dozen trees representing the main varieties scattered throughout the acreage. These apples are then graded according to the rules of the policy and the amount of damage allowed. The important thing in my estimation is that the insurance adjustor is familiar with fruit and grades and that the grower is permitted to co-operate with him in selecting representative fruits for the count.

"The adjustor visited our orchard on a Thursday afternoon and by the following Saturday noon we had a check from the company in Chicago for \$7,631.20, settling for a loss of 95.39 per cent on an \$8,000 policy."

In answer to our inquiry as to whether he planned to carry hail insurance in the future, Mr. Clark replied:

"Although our section is not supposed to be hail risk country, and it may be many years before there is another storm, we feel that hail insurance is worth its price in peace of mind when storms are on the horizon. My advice to growers is to carry hail insurance, and especially those who have never had a serious hail, because by the law of averages one is quite certain to occur. If a grower takes out insurance, it would be good policy for him to continue it year after year, without interruption, or he will likely waste some premium money by not

AMERICAN FRUIT GROWER

having insurance when the hail does strike."

Although not suffering as great a loss as Mr. Clark, another prominent fruit grower, W. B. Baughman, who is treasurer and manager of the Muskingum Fruit Farm Company in Muskingum County, Ohio, is a firm believer in hail insurance and points out the manner in which the 165-acre orchard which he manages is pro-

(Continued on page 28)



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The Seven Oaks Plantation boasts this modern, efficient cannery of 1,000-can daily capacity.

NORTHERN APPLES IN THE DEEP SOUTH

(Continued from page 20)

goes along. The State horticulturists say it's a worth while experiment. Ames says it isn't an experiment, it's an adventure. His neighbors shake their heads and say, "It's amazing!"

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In selecting northern varieties of apples for introduction to the "cotton State," Ames has concentrated on Red and Golden Delicious, McIntosh, Rome Beauty, and Grimes Golden. He is also trying out a new variety of apple, called the Helm, propagated in Florida for culture especially in the South. This variety, it is claimed, has all the virtues of a northern apple. In his apple plantings to date Ames has set out two and threeyear-old trees, as well as a trial planting of six to eight-year-old stock. Cover crops of Lespedeza are plowed under and a general program, using commercial fertilizers, is also carried on to build up fields once depleted by successive crops of cotton. Fruit trees planted on hillside tracts are set on the contour in order to prevent soil erosion.

Although operations at Seven Oaks are carried on in a modern manner entirely new to that part of the deep South, the plantation is not being run as a "gentleman's farm" or as a Ames is rapidly putting it on a self-supporting basis, and in the near future expects to have it completely on the profit side of the ledger.

To round out the self-sustaining program of the plantation, a general store has been opened to serve the negro hands and neighboring farmers. The store stocks just about everything anyone living in the back hill country might require. A gasoline station also is operated as an adjunct to the store.

In addition to the store a grist mill is operated to grind corn into meal, on a toll basis, for the neighborhood. Ames also markets the meal to stores in nearby towns under the Seven Oaks brand. In season a sugarcane mill is operated to make syrup from cane.

Ames is particularly proud of the up-to-date 1,000-can daily capacity cannery which has recently been built on the plantation. In it he intends to can tomatoes, okra, peaches, and other fruits, as he brings them into production. These canned products will be marketed under the Seven Oaks label in the trading areas between Mont-

gomery and Birmingham.

The plantation hands are under the direct supervision of a white overseer, who in turn is assisted by a white foreman. But, morning, noon, and night, "Mort" Ames keeps in touch with operations either in person or by means of a special direct line telephone which connects his office at the bag mill in Selma with the overseer's office at the plantation. This telephone system in itself is evidence of the modern methods in use at Seven Oaks, for it was the first telephone system to be introduced into the hill country back of Selma. Ames had to erect his own poles and run his own wire for miles over the hills to achieve the hookup.

Although Ames is mighty proud of the many modern features which characterize the operations at Seven Oaks, it is the growing of apples, northern varieties of apples, that he really has his heart set on.

"Why, only recently," he says, "Henry Ford looked over the findings of his experts and announced that anything could be grown in the South. Well, I'm going to grow northern apples right here in cotton country. Furthermore, I intend to grow such fine ones that the very sight of the Seven Oaks label on them will set folks' mouths to watering so much they just won't be able to say it can't be done."

And, when "Mort" Ames sets out to do a thing, he most generally goes through with it. He's just that kind of a go-getter.



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BETA-NAPTHOL TREE BANDS "SURE KILL" THE worms. Write for latest prices and literature, M. A. KOELLER, Barry, Illinois.

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TOMATO PLANTS LARGE STRONG FIELD GROWN Bonnybest, Pritchards, Marglobe, Rutgers and Baltimores 200, 50c; 500, 81.00; 1000, \$1.65; 5000, \$7.50. Peppers 500, \$1.25; 1000, \$2.00. Will ship C.O.D. Prompt shipments, safe arrival and satisfactory plants guaranteed or money refunded. OMEGA PLANT FARMS, Omega, Georgia.

EARLY FIELD-GROWN VEGETABLE PLANTS. PER 1.000: Cabbage, Onion, 75c; Tomato, Lettuce, Beet, Broccoll, \$1.50; Cauliflower, Pepper, Eggplant, Sweet Potato, \$2.00. Leading varieties. Catalog Free. PIED-MONT PLANT COMPANY, Albany, Georgia.

FREE CATALOG—FROSTPROOF, CERTIFIED, FIELD-Grown Cabbage and Onion Plants. Also Tomato, Pepper, Sweet Potato, Eggplant, Cauliflower, and other plants. Special offers. Write today. UNION PLANT CO., Texarkana. Arkansas.

FIELDGROWN CABBAGE PLANTS—5,000, \$3.25 Expressed. Satisfaction guaranteed. VINCENT LANK-FORD, JR., Franklin, Virginia.

PECANS IN FLORIDA

(Continued from page 25)

combination spray, made with Bordeaux to which has been added calcium or lead arsenate and zinc sulphate, will control the foliage diseases, leaf case-bearer, walnut defoliator, and rosette, if applied two or three times at three to four-week intervals from May 15 to the first of August. If there is no rosette present in the trees, it is not necessary to add zinc sulphate to the Bordeaux.

It should be pointed out that in the growing of pecans, as with other crops, thrifty, vigorous trees make the problem of controlling insects and diseases much easier. Therefore an adequate soil maintenance program, including cover crops of legumes and applications of commercial fertilizers is essential.

AMERICAN FRUIT GROWER

GUARDING AGAINST HAIL

(Continued from page 26)

tected against hail by insurance. "We have carried hail insurance for the past three years and have had a very satisfactory experience," Mr. Baughman states. "Our older orchards, from 22 to 27 years of age, are insured at \$100 per acre and the younger trees, from eight to 10 years old, at \$50 per acre. We suffered hail damage in two orchards in 1936. Adjustments were made entirely satisfactory to us and proved a considerable relief. Last year we suffered hail damage in our young orchard of 65 acres and the adjustments were made quickly and satisfactorily.

"While our rate is rather high, we would not want to be without hail insurance. During the three years we have carried insurance, we have collected a little more than the premiums for the same three years. We plan to carry full protection again this year and will be more than satisfied if we never have hail damage, for at the best it interferes with the selling of our fruit in the fancy markets:

Much the same system of adjustment was followed after Mr. Baughman's loss from hail as in the case of the Clark orchard. A detailed example of the method of determining the actual loss has been furnished by Mr. Baughman: "Suppose 1,000 apples are selected to ascertain the extent of injury, the loss adjustment is determined by the following tabulation:

360 show no marks at all...... 00 200 show slight marks only, no real damage below U.S. No. 1.... 00 240 show damage so as to grade less than U.S. No. 1 but good enough for U.S. No. 2-25%.... 60 140 show damage placing them between U.S. No. 2 and U.S. No. 3—60%..... 60 show cuts placing them in cull grade—85% 51

"If the orchard were insured for \$100 per acre, the claim would be \$19.50 per acre. One of our orchards showed damage of 16.8 per cent or \$16.80 per acre in 1936 on a \$100 per acre basis. The other showed damage of 35.5 per cent on \$50 per acre insurance or \$17.75 per acre. Both claims were paid in cash within a week after inspection was made."

Hailstorms show no "favorites," either so far as orchards are concerned or the section of the country where they strike. They have visited Mr. Clark's orchards in Iowa, and the Baughman orchards in Ohio have not been spared. These growers, fortunately, had the foresight to insure their orchards against the elements and thus were spared large financial losses on operation expenses and investments.

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- PAPER BERRY BOXES
- DISPLAY CRATE
- 1000 ITEMS INSTANTLY

By HANDY ANDY

While most of the new fruit packages have been designed for tree fruits, necessitating larger individual containers, there have been some notable introductions in small-fruit packages. Production of this type of container is even more exacting than for the larger packages. Small fruits, being more tender, are easily crushed, which opens the way for rots that render the fruit worthless for market. Another point, emphasized because of the delicate nature of the fruit, is proper ventilation. I've heard many new ideas expressed on smallfruit packages. If you, too, have some ideas, write me in care of AMERICAN FRUIT GROWER, 1370 Ontario Street, Cleveland, Ohio.

PAPER BERRY BOXES .

A berry box made entirely of paper was used successfully last year by growers in several berry sections. Featuring a rounded rim that does not injure the tender berries, this box has as its principal construction



material a coated paper. This treated paper prevents absorption of fruit juices and maintains a neat pack. A handle on each box adds to general efficiency as well as appearance.

In the accompanying illustration, the boxes are shown packed in a shipping crate. Many growers who used the box last season say that the neat appearance of the berry pack has a boosting effect on sales, provided, of course, the berries are of good quality. I've seen these specially packed berries both on the terminal markets and in retail outlets. The excellent appearance at

tracts buyers, and that's what we strive for with all types of fruit.

DISPLAY CRATE .

Said to be strong enough to support a man, yet light in weight, the display crate shown here has received much attention from growers and shippers of all types of berries. Security of the boxed fruit in transit



is assured because of the rigid sides and end construction and partitions between box layers and boxes in the layers. Rapid packing is possible with the crates, it is reported, because of the rounded wire closures. When opened, partitions supporting the layers can be pulled out to provide display of fruit. Some growers have placed their labels on the inside of the crate tops so that when opened, the label is prominently displayed above the fruit.

1000 ITEMS INSTANTLY .

Small screws, bolts, tacks, and odd-size nails are never missed in the average workshop until they're needed. An excellent way to prevent the confusion attendant the search for such items is to fasten.



screw-top closures to a beam in a convenient place over the work-bench, as shown in the illustration. When the glass jars are screwed in place, they readily display their contents, are instantly available, and never clutter the bench.

AMERICAN FRUIT GROWER



WHEN a truck overheats—you lose power. You are headed for more serious trouble. Clean out radiators regularly, twice a year. You can do it yourself with SANI-FLUSH. It takes 10 minutes. It costs 10c. (25c for the largest truck or tractor.)

SANI-FLUSH is a scientific preparation that removes rust, scale, sediment and sludge that clog radiators. Just pour a little in the cooling system. Follow directions on the can, Run the motor. Drain. Flush. Refill with clean water. That's all! The delicate veins that circulate water are clean and open. The motor runs cool. SANI-FLUSH is perfectly safe. Can't hurt engine or fittings. You'll find SANI-FLUSH in most bathrooms for cleaning toilets. Sold by grocery, drug, hardware, and five-and-ten-cent stores. 25c and 10c sizes. The Hygienic Products Company, Canton, Ohio.



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The Modern Root Grower

Treat cuttings from plants, shrubs, trees. See how roots spring out. Faster growth. Takes less time. Less loss. Quicker blossoms. Astonish yourself and frieads. Full directions with each bottle.



American Holly rooted in 6 weeks. An asimishing perjormance! Other plants, trees and abruhs do the same. Roses root in 8 wks.

Increase Gardening Pleasure

Sold in Seed, Hardware and many other stores, or send 50c for bottle. (Will treat up to 600 cuttings.) Sent prepaid. \$1.00 for larger size. Write today or see your dealer.

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SUCCESSFUL ORCHARDS

A "ROUND TABLE" PAGE FOR EVERY GROWER

TREES STRAIGHTENED WITH SUPPORT STAKES

NEWLY-set trees frequently bend or are one-sided because of action of prevailing winds. One of our "Round Table" growers, Frank Yarosh of New York, tells what he did when trees in his young

orchard started to bend.

"In 1934 I set out a young orchard and some of the trees became one-sided, so I drove a stick into the ground, attached a clamp, and brought the trees to an upright position. The next year I took the tension away and the trees went right back into the bending position. In 1936 after the frost was out of the ground and it had rained for two days, I went out and pushed the trees back into a straight position, and to my surprise they gave easily. The trees are now growing straight.

"When I planted some one-year-old Starking whips in 1937, some of them didn't branch out for good balance of branches. I grafted a scion in the right position for good balancing and the trees look good now. I figured that this would save a year in getting the framework branches of the trees off to a good

start."

PROPER EARLY PRUNING AIDS IN DEVELOPMENT

ANOTHER contribution from our active Iowa "Round Table" member, D. P. Ink, concerns his methods of pruning during the early years of the tree's life. He says: "Proper pruning the first few years of an apple tree's life gives it correct shape and forms a strong framework. It saves time and labor in later years and causes fewer large pruning

This page is a place for growers to get together and exchange experiences and ideas. The beginner, as well as the veteran, will find here many practical suggestions for better and more profitable fruit growing. In return for the helps you receive from this page, be ready to pass on, for the benefit of others, any new idea, method or procedure you have developed or run across. Just jot it down as it occurs to you (a postcard will often do) and mail it to the "ROUND TABLE EDITOR," AMERICAN FRUIT GROWER. Don't worry about fancy writing. What the readers of this page want are practical pointers—that are to the point.

wounds so that there will be less disease infection and wood decay.

"In Iowa we use the modified central leader tree with from five to 10 scaffold branches spaced 10 to 12 inches apart and distributed symmetrically around a trunk which should be six to eight feet long in the full-grown tree. As soon as the frame

is established, light annual prunings should be sufficient to bring it up to a well-formed, bearing tree.

"Too often owners of orchards neglect the early pruning. Then when the tree is making great strides in development, just about the time it is starting to bear, it is given a very severe pruning in an effort to get the proper shape of tree. This throws the tree out of bearing, makes numerous large wounds, may cause an excessive growth of water-sprouts, and has a general stunting effect on growth. To me it would seem much better to start shaping the tree when it is planted and give it the proper amount of pruning thereafter."

SEAWEED PROVIDES MULCH FOR ORCHARD

B. FARMER, veteran New Hampshire grower, has carried on a novel experiment on his 200-acre orchard which will be 25 years old next August. In his own words, Mr. Farmer relates:

"I live with my trees and note the growth, size of fruit spurs, and leaves, as an indication of the efficiency of my fertilizer program. I also take into account the growth of weeds, dandelions, and the cover crops as a check.

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and the cover crops as a check.

"We have been using the mulch system for conservation of moisture. Three years ago I mulched a few trees with scaweed because I found that I could haul in seaweed cheaper than I could cut my meadows and mulch with hay. I also was aware, from experience on my father's farm, that seaweed would prevent hollowhearted potatoes and rutabaga.

"By mulching with seaweed I did not know but that I could overcome corky spot in the Baldwins, as well as brown spot. I was aware that seaweed analysed nitrogen, phosphoric acid, and potash in sufficient quantities to make it worth \$5 a ton as a fertilizer at present prices, therefore the mulching with seaweed; and as an addition to my fertilizing program I might improve my growth, cut down disease, and at the same time obtain a very cheap fertilizer and mulch combined.

"The first year, trees mulched with seaweed showed a remarkable difference in appearance. Leaves were larger and better colored, grass under the trees was much heavier and of a dark green, and fruit was of better color and finish. The second year I applied 500 pounds of seaweed to each tree at a cost of nine cents

an observation in the spring, one of the State experiment station men visited the farm and observed the difference in the condition of the trees. The value of sesweed as fertilizer must be proved, however, before definite recommendations can

per tree. Before I had a chance to make

be made."



PAGE 36

AMERICAN FRUIT GROWER

Left—W. B. Farmer of New Hampshire hurries to fill orders of waiting customers in his orchard packing house. Complete packing equipment and modern packages are used by Mr. Farmer.

BREEDING BLIGHT RESISTANT CHESTNUT TREES

AT THE 1936 meeting of the Northern Nut Growers' Association the chestnut breeding project of the U.S.D.A. was presented. Last year Dr. A. H. Graves of the Brooklyn Botanic Garden discussed another active chestnut breeding project. To lovers of this good nut tree reports of the progress of these projects is welcome news.

Pointing out that the American chestnut is nearly extinct, or at least is no better than a shrub because of the shoots which arise from the roots of trees whose tops have been killed by the blight, Dr. Graves outlined his procedure in attempt-

ing to breed new blight resistant varieties.

Dr. Graves' first attempt was to cross the Japanese chestnut, some forms of which are resistant to blight, with the American chestnut. The crossing which began in 1930 has been continued to date and he now has over 700 hybrids, derived from 21 crosses and involving in various combinations the following species—the American, Japanese, and Chinese chestnuts, the American and Chinese chinquapins. Another species, the European chestnut, remains to be used. All of these species possess certain characteristics which Dr. Graves desires to incorporate in the new varieties he is attempting to develop.

Some interesting information has been gleaned from a study of these hybrids. The condition known as "hybrid vigor," which is characterized by unusually vigorous growth, has been evident in many individuals. Some have grown as much as three or four feet in a year, whereas the average annual growth of the native American chestnut is about one foot a

year.

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Another manifestation of hybrid vigor is the early flowering of the hybrids. Several hybrids between the Japanese and American chestnut have bloomed in the third year of their growth, bearing both male and female flowers. The Japanese parent blooms sometimes at the age of five or six years and the American parent at 11 or 12 years. Other hybrids have bloomed in their second season.

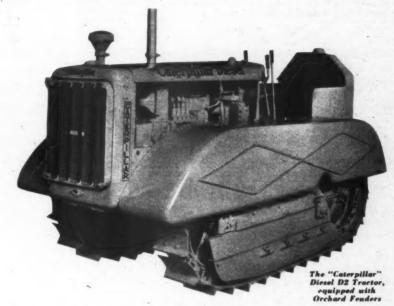
The hybrid chestnuts are tested for their ability to escape, and also to resist the chestnut blight fungus. The plantings are surrounded by old stands of diseased American chestnuts. Those hybrids which escape infection are then inoculated with the blight organism for a more severe test. Already hybrids between the Japanese and American chestnut have been found which are completely resistant in

two years' tests.

Dr. Graves believes that disease-resistant chestnuts may possibly be developing by mutation or "sporting" somewhere in eastern forests. Individual trees vary greatly in their susceptibility to blight. Nuts from fruiting native sprouts are being planted. He will welcome news of chestnut trees which seem to be resisting the blight and would also like nuts from such trees for planting. The nuts should be sent immediately they are harvested, without drying, to Dr. A. H. Graves, Brooklyn Botanic Gardens, Brooklyn, N. Y.—George L. Slate, Secy, Northern Nut Growers Assn., Geneva, N. Y.

Of perhaps greatest importance in the establishment of a young orchard is the selection of a suitable site. New York extension specialists are now providing a service for growers planning new orchards by which a soil expert looks over the field, checks samples of the soil, and reports his findings to the grower.

WHAT ABOUT THE DIESEL D2 FOR THE FRUIT GROWER?



Does it have all-weather traction?

Both the Diesel D2 and the famous Twenty-Two have the same sure-footed, all-weather traction—for both have the same proven tracks; same accurate balance of ample weight. That means power to pull heavy disks in tall, damp cover-crops—spray on time, even in muddy orchard.

What loads does the Diesel D2 pull?

At third speed of 3.0 miles per hour, the Diesel D2 develops a drawbar pull of 3025 pounds. That's ample, under average conditions, to pull three 14-inch moldboard plow bottoms, a 7-foot heavy-duty cover-crop disk (fully angled), a 12-foot spring-tooth orchard cultivator or similar loads—and, with power take-off, a 450-gallon power take-off sprayer.

How do the 5 speeds save time?

On spraying, for example, the Diesel D2 can bring the empty sprayer to the mixing tank and return to the orchard at fifth speed — 5.1 miles per hour — saving minutes every time you reload. A "low" first speed of 1.7 miles per hour provides extra-slow travel to spray — or a drawbar pull of 5690 pounds for the heaviest work! In between are three other practical speeds, giving a range to fit all jobs and conditions.

How much fuel does it save?

Under average conditions, the Diesel D2's 4-cylinder engine uses only 11/4 gallons of low-cost fuel per hour—saving 60% to 80% on fuel expense alone as compared to spark-ignition tractor power!

FURTHER FACTS ON REQUEST!

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DIESEL ENGINES . TRACK-TYPE TRACTORS

Gentlemen: I operateacres	of orchard.	
My power is		Please rush facts on:
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Distillate or gasoline)	4-5 plow	
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CROPS LIKE THIS!

Fruit and foliage like that above don't just happen. They are the result of careful cultural methods and scientific spraying.

Among the most important of these factors is the selection of the proper spray material. Dow "MIKE" Sulfur's* microscopic fineness, high toxicity and longer lasting adhesion do a better job in protecting fruit and foliage against apple scab and other fungous diseases. And in addition, because it is non-caustic, "MIKE" Sulfur does not burn or injure leaves. It assures normal growth of the abundant, vigorous foliage that is the first essential for a successful apple crop.

"MIKE" Sulfur's non-caustic feature is doubly important, for it also produces more marketable fruit of finer finish. Thus, "MIKE" Sulfur is important for producing not only the biggest crops, but also the best.

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